Journal of
Controversies in Obstetrics & Gynecology and Pediatrics

Case Report

DOI: 10.51271/JCOGP-0038

# Ectopic pregnancy with unicornuate uterus and renal agenesis

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**Cite this article:** Dağlaroğlu M, Mert A, Akdemir E. Ectopic pregnancy with unicornuate uterus and renal agenesis. *J Controv Obstetr Gynecol Ped.* 2024;2(4):94-96.

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**Received**: 28/09/2024 ◆ **Accepted**: 19/10/2024 ◆ **Published**: 23/10/2024

## ABSTRACT

Müllerian anomaly is a common congenital developmental disorder in women. Ectopic pregnancy is also one of the gynecological emergencies observed in women of reproductive age. The co-occurrence of these two conditions is quite rare. Among Müllerian anomalies, the unicornuate uterus is often difficult to diagnose due to its generally asymptomatic nature. Women with a unicornuate uterus have fertility levels similar to those in the general population. Developmental defects can be observed together due to the relationship between Müllerian development and mesonephric ducts. This case aims to highlight Müllerian anomaly and renal agenesis observed in conjunction with ectopic pregnancy.

**Keywords:** Müllerian anomaly; ectopic pregnancy; renal agenesis

## INTRODUCTION

Müllerian canal anomalies occur in the general population at a rate of 0.5% to 6.7%. In women with recurrent miscarriages, the reported frequency can be as high as 16.7%. It is estimated that the actual prevalence is higher than the diagnosed cases. The most common clinical presentations include primary amenorrhea, dysmenorrhea, pelvic pain, endometriosis, sexual difficulties, and low self-esteem. Diagnostic methods include two-dimensional and three-dimensional ultrasound, MRI, hysterosalpingography, hysteroscopy, and laparoscopy.[1] Pregnancy rates in women with uterine anomalies are not significantly different from those with a normal uterus .The coexistence of Müllerian anomalies and ectopic pregnancy is not a common occurrence. In a study conducted among infertile women, the incidence of ectopic pregnancy in those with a unicornuate uterus was reported as 4%.[2]

We present as a case report the incidentally observed müllerian anomaly and renal agenesis in a patient who was operated on due to ectopic pregnancy.

## CASE PRESENTATION

A 31-year-old female patient presented to our clinic with complaints of delayed menstruation and vaginal bleeding. Transvaginal ultrasound imaging did not reveal a gestational sac in the endometrial cavity.The patient had a history of one abortion and five parity. She had no known surgical history other than a cesarean section. On ultrasound, the left ovary could not be clearly assessed, but a suspicious focus was observed in the right ovary and minimal fluid in the Douglas pouch. The sequential β-HCG results suggested an ectopic pregnancy due to a plateau pattern. The patient's β-HCG levels measured one day apart were observed to be 4975 ıU/ml and 5102 ıU/ml. After the curettage, no decrease in the β-HCG level was observed, and it was reported as 4781 ıU/ml. The patient's vital signs were stable, with positive abdominal guarding and negative rebound tenderness. Laparoscopic surgery was recommended to the patient. She requested tubal ligation. The patient was selected for surgery based on a collaborative decision regarding the treatment. After obtaining informed consent and completing the necessary preparations, the patient was taken to the operating room.

During laparoscopic exploration, it was found that the patient had no left fallopian tube or left ovarian ligament, and the uterus was deviated to the right, with the left ovary fixed to the left abdominal wall. The patient, who had only previously undergone a cesarean section, had minimal intra-abdominal adhesions. It was also noted that the patient did not have a left kidney.

The ectopic focus in the right tube was excised using Ligasure. After controlling for bleeding, the procedure was concluded. The hemoglobin level was 11.3 g/dL before the operation and decreased to 9.1g/dL afterwards.

An magnetic resonance (MR) imaging has been requested to further detail the patient's developmental anomalies. Postoperatively, the patient underwent MR imaging, and the images are as follows. It has been showed by MR imaging that the patient has no left kidney and left lig.ovariproprium (Figure 1 A,B). The patient's left ovary was observed to be deflated to the left abdominal wall (Figure 1 C).

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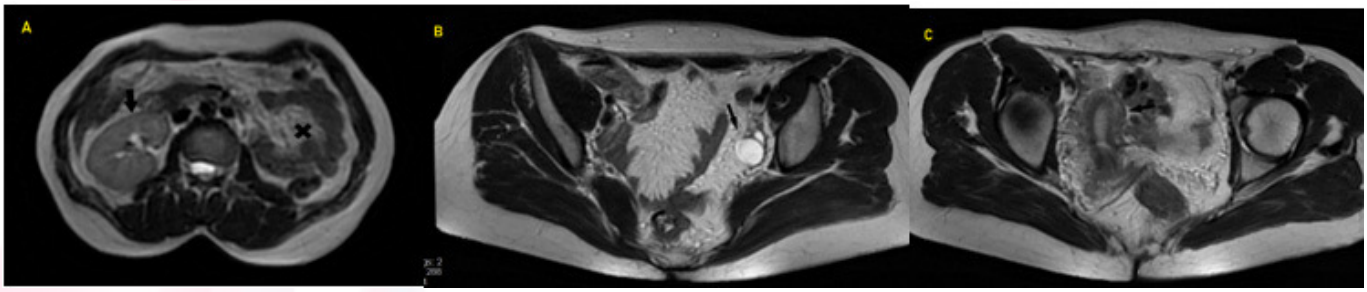


**Figure 1**. Arrow there is a right kidney but the left kidney is not visible (**A**), Arrow The left ovary is adjacent to the iliac crest and has no connection with the uterus (**B**), Arrow uterus deviated to the right (**C**)

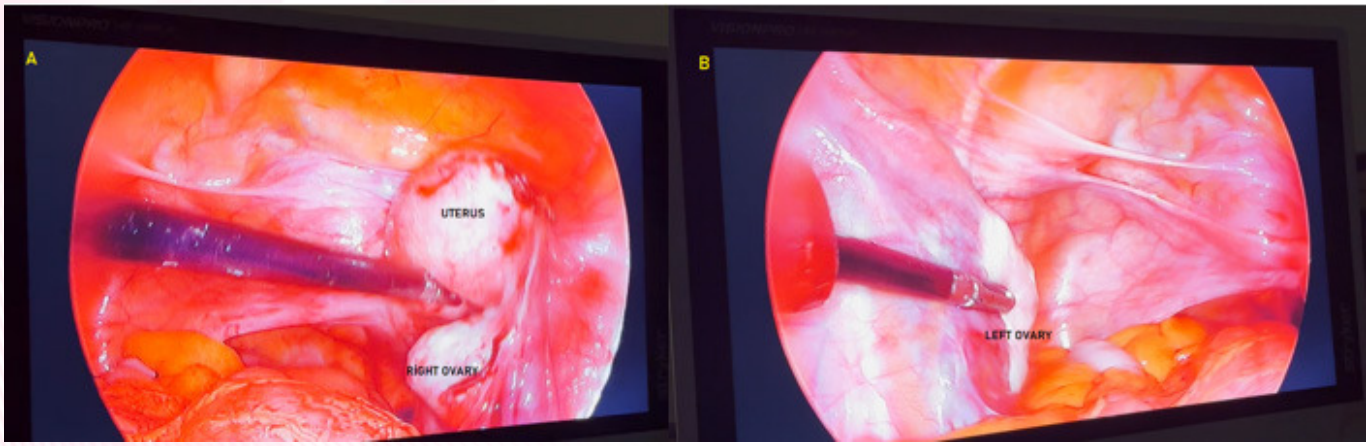


**Figure 2**. Right ovary and relation of uterus (**A**), Left ovary without uteroovarian ligament (**B**)

Intraoperative images were similar to the MR findings The left ovary is observed fixed to the abdominal wall and the left uteroovarian ligament cannot be observed (Figure 2 A,B).

A written consent was obtained from the patient.

## DISCUSSION

In a study conducted among women of reproductive age, the frequency of Müllerian anomalies was noted to be 7%. This figure is not realistic due to the presence of asymptomatic patients.[3] The coexistence of Müllerian anomalies with renal system anomalies is quite common, with over 30% of renal anomalies occurring alongside Müllerian anomalies.[4]

Ectopic pregnancy has an incidence of 5-10% and is one of the conditions that increase maternal mortality in the first trimester. Patients often present with symptoms such as delayed menstruation and vaginal bleeding.[5]

The coexistence of ectopic pregnancy and Müllerian anomalies is not common, and there is limited data available in the literature on this topic; thus, the exact prevalence is not well established.

According to The American Society for Reproductive Medicine's (ASRM) 2021 classification, unicornuate uterus is classified as left/right unicornuate uterus, with distal atrophic uterine remnant, with distal uterine remnant functional endometrium, associated atrophic uterine remnant and uterine horn communicating at level of cervix.[6]

In our case, a right unicornuate uterus was observed, along with left renal agenesis.

In a study involving infertile women, the prevalence of Müllerian anomalies was found to be 4.4%. Among Müllerian anomalies, the septate uterus is reported as the most common form. The two most frequently observed forms of Müllerian anomalies associated with pregnancies in infertile patients are septate uterus and unicornuate uterus, respectively.[7]

In a case similar to ours, a Müllerian anomaly complicated by ectopic pregnancy accompanied by right renal agenesis has been reported.[8]

In the literature review, there are cases of unicornuate uterus and ectopic pregnancy, but no similar study was found regarding the case of unicornuate uterus and renal agenesis together with ectopic pregnancy.[9]

## CONCLUSION

This case shows us that not every Müllerian anomaly affects fertility. It is not always possible to detect Müllerian anomaly. Müllerian anomaly may be encountered in gynecological emergencies such as ectopic pregnancy and surgery. Renal anomalies may also accompany Müllerian anomalies due to their similar developmental origin. In this case, we aimed to draw attention to the fact that we may encounter incidental types of müllerian anomalies in patients presenting with ectopic pregnancy.

## ETHICAL DECLARATIONS

### Informed Consent

All patients signed a free and informed consent form.

### Referee Evaluation Process

Externally peer-reviewed.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Financial Disclosure

The authors declared that this study has received no financial support.

## Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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